

SEQUENCE LISTING

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<120> Peptides Based on the Sequence of Human Lactoferrin
and Their Use

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<150> PCT/SE99/01230
<151> 2000-09-29

<150> SE 9802441-7
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<151> 1998-12-29

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<170> PatentIn version 2.1

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<220>
<221> MOD_RES
<222> (1)
<223> ACETYLATION

<220>
<221> PEPTIDE
<222> (1)
<223> Amino acid 1 is Xaa wherein Xaa = Glu or no amino acid.

<220>
<221> PEPTIDE
<222> (2)
<223> Amino acid 2 is Xaa wherein Xaa = Ala or no amino acid.

<220>
<221> PEPTIDE
<222> (5)
<223> Amino acid 5 is Xaa wherein Xaa = Cys or Ala.

<220>
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 <222> (7)
 <223> Amino acid 7 is Xaa wherein Xaa = Gln or Lys.

<220>
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 <222> (11)
 <223> Amino acid 11 is Xaa wherein Xaa = Asn or Asp.

<220>
 <221> PEPTIDE
 <222> (17)..(25)
 <223> Amino acids 17-25 are Xaa wherein Xaa = Gly, Pro, Pro, Val, Ser, Cys, Ile, Lys, Arg

<220>
 <221> MOD_RES
 <222> (25)
 <223> AMIDATION

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to modification of the sequence consisting of aa 16-40 in human lactoferrin

<400> 1

Xaa	Xaa	Thr	Lys	Xaa	Phe	Xaa	Trp	Gln	Arg	Xaa	Met	Arg	Lys	Val	Arg
1				5				10						15	

Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa							
				20				25							

<210> 2
 <211> 25
 <212> PRT
 <213> Artificial Sequence

<220>
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<220>
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 <222> (25)
 <223> AMIDATION

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 16-40 in human lactoferrin

<400> 2

Glu	Ala	Thr	Lys	Cys	Phe	Gln	Trp	Gln	Arg	Asn	Met	Arg	Lys	Val	Arg
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

1 5 10 15
 Gly Pro Pro Val Ser Cys Ile Lys Arg
 20 25

<210> 3
 <211> 25
 <212> PRT
 <213> Artificial Sequence

<220>
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 <222> (1)
 <223> ACETYLATION

<220>
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 <223> AMIDATION

<220>
 <221> DISULFID
 <222> (5)..(22)

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 16-40 in
 human lactoferrin

<400> 3
 Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10 15

Gly Pro Pro Val Ser Cys Ile Lys Arg
 20 25

<210> 4
 <211> 23
 <212> PRT
 <213> Artificial Sequence

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLATION

<220>
 <221> MOD_RES
 <222> (23)..(23)
 <223> AMIDATION

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18-40 in human lactoferrin

<400> 4

Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg Gly Pro
 1 5 10 15

Pro Val Ser Cys Ile Lys Arg
 20

<210> 5

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<221> MOD_RES

<222> (1)

<223> ACETYLTATION

<220>

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<222> (23)

<223> AMIDATION

<220>

<221> DISULFID

<222> (3)..(20)

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18-40 in human lactoferrin

<400> 5

Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg Gly Pro
 1 5 10 15

Pro Val Ser Cys Ile Lys Arg
 20

<210> 6

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<221> MOD_RES

<222> (1)

<223> ACETYLTATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18-31 in human lactoferrin

<400> 6
 Thr Lys Ala Phe Lys Trp Gln Arg Asp Met Arg Lys Val Arg
 1 5 10

<210> 7
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
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 <222> (1)
 <223> ACETYLATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<220>
 <221> BINDING
 <222> (5)..(9)

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of aa 18-31 in human lactoferrin; a lactam is formed between aa 5 and 9

<400> 7
 Thr Lys Ala Phe Lys Trp Gln Arg Asp Met Arg Lys Val Arg
 1 5 10

<210> 8
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 12-31 of the protein

human lactoferrin

<400> 8

Val Ser Gln Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met
 1 5 10 15

Arg Lys Val Arg
 20

<210> 9

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 12-18 of the protein
 human lactoferrin

<400> 9

Val Ser Gln Pro Glu Ala Thr
 1 5

<210> 10

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 13-19 of the protein
 human lactoferrin

<400> 10

Ser Gln Pro Glu Ala Thr Lys
 1 5

<210> 11

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 14-20 of the protein
 human lactoferrin

<400> 11

Gln Pro Glu Ala Thr Lys Cys
 1 5

<210> 12
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 15-21 of the protein
 human lactoferrin

<400> 12
 Pro Glu Ala Thr Lys Cys Phe
 1 5

<210> 13
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 16-22 of the protein
 human lactoferrin

<400> 13
 Glu Ala Thr Lys Cys Phe Gln
 1 5

<210> 14
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 17-23 of the protein
 human lactoferrin

<400> 14
 Ala Thr Lys Cys Phe Gln Trp
 1 5

<210> 15

<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 18-24 of the protein
human lactoferrin

<400> 15
Thr Lys Cys Phe Gln Trp Gln
1 5

<210> 16
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 19-25 of the protein
human lactoferrin

<400> 16
Lys Cys Phe Gln Trp Gln Arg
1 5

<210> 17
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 20-26 of the protein
human lactoferrin

<400> 17
Cys Phe Gln Trp Gln Arg Asn
1 5

<210> 18
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of

natural or artificial origin consisting of the
amino acids in positions 21-27 of the protein
human lactoferrin

<400> 18
Phe Gln Trp Gln Arg Asn Met
1 5

<210> 19
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 22-28 of the protein
human lactoferrin

<400> 19
Gln Trp Gln Arg Asn Met Arg
1 5

<210> 20
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 23-29 of the protein
human lactoferrin

<400> 20
Trp Gln Arg Asn Met Arg Lys
1 5

<210> 21
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 24-30 of the protein
human lactoferrin

<400> 21
Gln Arg Asn Met Arg Lys Val

1 5

<210> 22
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 25-31 of the protein
human lactoferrin

<400> 22
Arg Asn Met Arg Lys Val Arg
1 5

<210> 23
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 16-23 of the protein
human lactoferrin

<400> 23
Glu Ala Thr Lys Cys Phe Gln Trp
1 5

<210> 24
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 16-24 of the protein
human lactoferrin

<400> 24
Glu Ala Thr Lys Cys Phe Gln Trp Gln
1 5

<210> 25
<211> 10

<212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16-25 of the protein human lactoferrin

<400> 25
 Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg
 1 5 10

<210> 26
 <211> 11
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16-26 of the protein human lactoferrin

<400> 26
 Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn
 1 5 10

<210> 27
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the amino acids in positions 16-27 of the protein human lactoferrin

<400> 27
 Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met
 1 5 10

<210> 28
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of natural or artificial origin consisting of the

amino acids in positions 16-28 of the protein
human lactoferrin

<400> 28

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg
1 5 10

<210> 29

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 16-29 of the protein
human lactoferrin

<400> 29

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys
1 5 10

<210> 30

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 16-30 of the protein
human lactoferrin

<400> 30

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val
1 5 10 15

<210> 31

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 16-31 of the protein
human lactoferrin

<400> 31

Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10 15

<210> 32
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 13-31 of the protein
 human lactoferrin

<400> 32
 Ser Gln Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg
 1 5 10 15

Lys Val Arg

<210> 33
 <211> 18
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 14-31 of the protein
 human lactoferrin

<400> 33
 Gln Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys
 1 5 10 15

Val Arg

<210> 34
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 15-31 of the protein
 human lactoferrin

<400> 34
 Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val
 1 5 10 15

Arg

<210> 35
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 17-31 of the protein
 human lactoferrin!

<400> 35
 Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10 15

<210> 36
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 18-31 of the protein
 human lactoferrin

<400> 36
 Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 37
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Peptide of
 natural or artificial origin consisting of the
 amino acids in positions 19-31 of the protein
 human lactoferrin

<400> 37
 Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 38

<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 20-31 of the protein
human lactoferrin

<400> 38
Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 39
<211> 11
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 21-31 of the protein
human lactoferrin

<400> 39
Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 40
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 22-31 of the protein
human lactoferrin

<400> 40
Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 41
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Peptide of

natural or artificial origin consisting of the
amino acids in positions 23-31 of the protein
human lactoferrin

<400> 41

Trp Gln Arg Asn Met Arg Lys Val Arg
1 5

<210> 42

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptide of
natural or artificial origin consisting of the
amino acids in positions 24-31 of the protein
human lactoferrin

<400> 42

Gln Arg Asn Met Arg Lys Val Arg
1 5

<210> 43

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<221> PEPTIDE

<222> (2)..(10)

<223> Amino acids 2, 4, 6 and 10 are Xaa wherein Xaa = Gln, Lys,
Asp, Asn or Val.

<220>

<223> Description of Artificial Sequence: of natural or
artificial origin, corresponding to a modification
of the sequence consisting of amino acids 21-31 in
human lactoferrin

<400> 43

Phe Xaa Trp Xaa Arg Xaa Met Arg Lys Xaa Arg
1 5 10

<210> 44

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or

artificial origin, corresponding to the sequence
consisting of amino acids 21-31 in human
lactoferrin

<400> 44

Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 45

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 45

Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 46

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 46

Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 47

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 47

Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg

1 5 10

<210> 48
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<400> 48
 Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 49
 <211> 13
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been modified

<400> 49
 Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 50
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<400> 50
 Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 51
 <211> 14

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<400> 51
 Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 52
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 18-31 in
 human lactoferrin

<400> 52
 Thr Lys Ala Phe Lys Trp Gln Arg Asp Met Arg Lys Val Arg
 1 5 10

<210> 53
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 18-31 in
 human lactoferrin

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLTATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<400> 53
 Thr Lys Ala Phe Lys Trp Gln Arg Glu Met Arg Lys Val Arg
 1 5 10

<210> 54
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of aa 18-31 in human lactoferrin; a lactam is formed between aa 5 and 9

<220>
 <221> BINDING
 <222> (5)..(9)
 <223> LACTAM

<400> 54
 Thr Lys Ala Phe Lys Trp Gln Arg Asp Met Arg Lys Val Arg
 1 5 10

<210> 55
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of aa 18-31 in human lactoferrin; a lactam is formed between aa 5 and 9

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLTATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<220>
 <221> BINDING
 <222> (5)..(9)
 <223> LACTAM

<400> 55
 Thr Lys Ala Phe Lys Trp Gln Arg Glu Met Arg Lys Val Arg
 1 5 10

<210> 56
 <211> 14

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18-31 in human lactoferrin

<400> 56
 Thr Lys Lys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 57
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18-31 in human lactoferrin

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<400> 57
 Thr Lys Lys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 58
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18-31 in human lactoferrin

<400> 58
 Thr Lys Lys Phe Gln Trp Asp Arg Lys Met Arg Lys Asp Arg
 1 5 10

<210> 59
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 18-31 in human lactoferrin

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLTATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<400> 59
 Thr Lys Lys Phe Gln Trp Asp Arg Lys Met Arg Lys Asp Arg
 1 5 10

<210> 60
 <211> 14
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresp. to a modification of the seq. consisting of aa 18-31 in human lactoferrin; lactams formed between aa 3 and 7, and 9 and 13

<220>
 <221> BINDING
 <222> (3)..(7)
 <223> LACTAM

<220>
 <221> BINDING
 <222> (9)..(13)
 <223> LACTAM

<400> 60
 Thr Lys Lys Phe Gln Trp Asp Arg Lys Met Arg Lys Asp Arg
 1 5 10

<210> 61
 <211> 14

<212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresp. to a modification of the seq. consisting of aa 18-31 in human lactoferrin; lactams formed between aa 3 and 7, and 9 and 13

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLTATION

<220>
 <221> MOD_RES
 <222> (14)
 <223> AMIDATION

<220>
 <221> BINDING
 <222> (3)..(7)
 <223> LACTAM

<220>
 <221> BINDING
 <222> (9)..(13)
 <223> LACTAM

<400> 61
 Thr Lys Lys Phe Gln Trp Asp Arg Lys Met Arg Lys Asp Arg
 1 5 10

<210> 62
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or artificial origin, corresponding to the sequence consisting of amino acids 17-31 in human lactoferrin

<400> 62
 Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10 15

<210> 63
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 17-31 in human lactoferrin

<220>

<221> MOD_RES

<222> (1)

<223> ACETYLTATION

<220>

<221> MOD_RES

<222> (15)

<223> AMIDATION

<400> 63

Ala	Thr	Lys	Cys	Phe	Gln	Trp	Gln	Arg	Asn	Met	Arg	Lys	Val	Arg
1				5					10				15	

<210> 64

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to the sequence consisting of amino acids 16-31 in human lactoferrin

<400> 64

Glu	Ala	Thr	Lys	Cys	Phe	Gln	Trp	Gln	Arg	Asn	Met	Arg	Lys	Val	Arg
1				5					10				15		

<210> 65

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresponding to a modification of the sequence consisting of amino acids 16-31 in human lactoferrin

<220>

<221> MOD_RES

<222> (1)

<223> ACETYLTATION

<220>

<221> MOD_RES

<222> (16)
 <223> AMIDATION

<400> 65
 Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
 1 5 10 15

<210> 66
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to the sequence
 consisting of amino acids 15-31 in human
 lactoferrin

<400> 66
 Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val
 1 5 10 15

Arg

<210> 67
 <211> 17
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: of natural or
 artificial origin, corresponding to a modification
 of the sequence consisting of amino acids 15-31 in
 human lactoferrin

<220>
 <221> MOD_RES
 <222> (1)
 <223> ACETYLATION

<220>
 <221> MOD_RES
 <222> (17)
 <223> AMIDATION

<400> 67
 Pro Glu Ala Thr Lys Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val
 1 5 10 15

Arg

<210> 68
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 68
Ala Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 69
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 69
Cys Ala Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 70
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 70
Cys Phe Ala Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 71
<211> 12
<212> PRT
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 71

Cys Phe Gln Ala Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 72

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 72

Cys Phe Gln Trp Ala Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 73

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been modified

<400> 73

Cys Phe Gln Trp Gln Ala Asn Met Arg Lys Val Arg
1 5 10

<210> 74

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 74
Cys Phe Gln Trp Gln Arg Ala Met Arg Lys Val Arg
1 5 10

<210> 75
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 75
Cys Phe Gln Trp Gln Arg Asn Ala Arg Lys Val Arg
1 5 10

<210> 76
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 76
Cys Phe Gln Trp Gln Arg Asn Met Ala Lys Val Arg
1 5 10

<210> 77
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:of natural or
artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein one aa has been substituted

<400> 77
Cys Phe Gln Trp Gln Arg Asn Met Arg Ala Val Arg
1 5 10

<210> 78
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<400> 78
 Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Ala Arg
 1 5 10

<210> 79
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<400> 79
 Cys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Ala
 1 5 10

<210> 80
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<400> 80
 Cys Phe Gln Leu Gln Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 81
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20-31 in human lactoferrin wherein one aa has been substituted

<400> 81

Cys Phe Gln Trp Gln Lys Asn Met Arg Lys Val Arg
 1 5 10

<210> 82

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20-31 in human lactoferrin wherein one aa has been substituted

<400> 82

Cys Phe Gln Trp Gln Arg Asn Leu Arg Lys Val Arg
 1 5 10

<210> 83

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20-31 in human lactoferrin wherein one aa has been substituted

<400> 83

Cys Phe Gln Trp Gln Arg Asn Met Lys Lys Val Arg
 1 5 10

<210> 84

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20-31 in human lactoferrin wherein one aa has been substituted

<400> 84

Cys Phe Gln Trp Glu Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 85
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<400> 85
 Cys Phe Gln Trp Gln Glu Asn Met Arg Lys Val Arg
 1 5 10

<210> 86
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<400> 86
 Cys Phe Gln Trp Gln Arg Glu Met Arg Lys Val Arg
 1 5 10

<210> 87
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<220>
 <221> MISC_FEATURE
 <222> (5)
 <223> Amino acid 5 is Xaa wherein Xaa = Orn.

<400> 87

Cys Phe Gln Trp Xaa Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 88
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<220>
 <221> MISC_FEATURE
 <222> (5)
 <223> Amino acid 5 is Xaa wherein Xaa = Nle.

<400> 88
 Cys Phe Gln Trp Xaa Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 89
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein one aa has been substituted

<220>
 <221> MISC_FEATURE
 <222> (7)
 <223> Amino acid 7 is Xaa wherein Xaa = Orn.

<400> 89
 Cys Phe Gln Trp Gln Arg Xaa Met Arg Lys Val Arg
 1 5 10

<210> 90
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20-31 in human lactoferrin wherein one aa has been substituted

<220>

<221> MISC_FEATURE

<222> (7)

<223> Amino acid 7 is Xaa wherein Xaa = Nle.

<400> 90

Cys Phe Gln Trp Gln Arg Xaa Met Arg Lys Val Arg
1 5 10

<210> 91

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresponding to the sequence consisting of aa 20-31 in human lactoferrin wherein one aa has been substituted

<400> 91

Cys Phe Gln Trp Lys Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 92

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or artificial origin, corresp. to a modification of the sequence consisting of aa 18-31 in human lactoferrin; a lactam is formed between aa 5 and 9

<220>

<221> BINDING

<222> (5)..(9)

<223> LACTAM

<400> 92

Cys Phe Gln Trp Lys Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 93

<211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein some aa have been substituted

<400> 93
 Cys Phe Gln Trp Lys Arg Ala Met Arg Lys Val Arg
 1 5 10

<210> 94
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein some aa have been substituted

<400> 94
 Cys Phe Ala Trp Lys Arg Asn Met Arg Lys Val Arg
 1 5 10

<210> 95
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or
 artificial origin, corresponding to the sequence
 consisting of aa 20-31 in human lactoferrin
 wherein some aa have been substituted

<400> 95
 Cys Phe Ala Trp Gln Arg Ala Met Arg Lys Val Arg
 1 5 10

<210> 96
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:of natural or

artificial origin, corresponding to the sequence
consisting of aa 20-31 in human lactoferrin
wherein some aa have been substituted

<400> 96

Cys Phe Gln Leu Lys Lys Asn Met Lys Lys Val Arg
1 5 10

<210> 97

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or
artificial origin, corresp. to a modification of
the sequence consisting of aa 18-31 in human
lactoferrin; a lactam is formed between aa 5 and 9

<220>

<221> BINDING

<222> (5)..(9)

<223> LACTAM

<400> 97

Cys Phe Ala Leu Lys Lys Ala Met Lys Lys Val Arg
1 5 10

<210> 98

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:of natural or
artificial origin, corresp. to a modification of
the sequence consisting of aa 18-31 in human
lactoferrin; a lactam is formed between aa 5 and 9

<220>

<221> BINDING

<222> (5)..(9)

<223> LACTAM

<400> 98

Thr Lys Lys Phe Gln Trp Gln Arg Asn Met Arg Lys Val Arg
1 5 10

<210> 99

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: of natural or artificial origin, corresp. to a modification of the sequence consisting of aa 18-31 in human lactoferrin; a lactam is formed between aa 5 and 9

<220>

<221> PEPTIDE

<222> (3)

<223> Amino acid 3 is Xaa wherein Xaa = Gln or Ala.

<220>

<221> PEPTIDE

<222> (4)

<223> Amino acid 4 is Xaa wherein Xaa = Trp or Leu.

<220>

<221> PEPTIDE

<222> (5)

<223> Amino acid 5 is Xaa wherein Xaa = Gln, Lys, Orn, Ala or Nle.

<220>

<221> PEPTIDE

<222> (6)

<223> Amino acid 6 is Xaa wherein Xaa = Arg, Lys or Ala.

<220>

<221> PEPTIDE

<222> (7)

<223> Amino acid 7 is Xaa wherein Xaa = Asn, Orn, Ala or Nle.

<220>

<221> PEPTIDE

<222> (8)

<223> Amino acid 8 is Xaa wherein Xaa = Met or Leu.

<220>

<221> PEPTIDE

<222> (9)

<223> Amino acid 9 is Xaa wherein Xaa = Arg or Lys.

<220>

<221> BINDING

<222> (5)..(9)

<223> LACTAM

<400> 99

Cys Phe Xaa Xaa Xaa Xaa Xaa Xaa Xaa Lys Val Arg
1 5 10

<210> 100

<211> 29

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:a fragment of
human lactoferrin consisting of the amino acids in
positions 12-40

<400> 100

Val	Ser	Gln	Pro	Glu	Ala	Thr	Lys	Cys	Phe	Gln	Trp	Gln	Arg	Asn	Met
1				5				10					15		

Arg	Lys	Val	Arg	Gly	Pro	Pro	Val	Ser	Cys	Ile	Lys	Arg
			20					25				